

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: )  
inventor's name(s): Bruce S. HALL ) Group Art Unit: Unassigned  
Serial No. Unassigned ) Examiner: Unassigned  
(U.S. National Stage of PCT/US2004/010488)  
Filed: Concurrently Herewith )  
For: SCHRAPNEL CONTAINMENT ) Date: October 7, 2001  
SYSTEM AND METHOD FOR  
PRODUCING SAME

**PETITION TO MAKE SPECIAL UNDER 37 C.F.R. 1.102(c) AND**  
**MPEP 708.02(VIII) and 708.02(XI)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. 1.102(c) and MPEP 708.02(VIII) and 708.02(XI), Applicant requests that the above-identified application be granted Special Status under at least one of Categories VIII and XI of MPEP 708.02. In support of this request, Applicant states or submits herewith the following:

1. A Petition fee of \$ 130.00 as set forth in 37 C.F.R. 1.17(h) is submitted herewith and request that any overpayment be credited to, and any deficiency be charged to, Deposit Account No. 50-1165;
2. Applicant respectfully submits that all claims 1-53 are directed to a single invention;
3. A pre-examination search was made by the Applicant and the discovered references submitted herewith on a PTO-1449. The search was conducted in Class 52, Subclasses 506.01 and 741.3; Class 89, Subclass 36.04; and Class 428, Subclass 911, and Examiner Robert Canfield of Class 52 was consulted; and

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4. Applicant offers the following detailed discussion of what Applicant believes to be the most relevant references discovered during the search. However, Applicant respectfully requests the Examiner to closely review all references of record in the application.

U.S. Patent No. 6,737,368 is directed toward knife and ballistic projectile penetration resistant articles, comprising, in order, a first plurality of layers of fabric made of fibers; a second plurality of layers of fabric made of fibers, each of the layers being substantially surrounded and substantially impregnated by a corresponding polymeric matrix comprising a thermoset resin, a thermoplastic resin, or mixtures thereof; and a third plurality of layers of woven fabric made of fibers. The fibers of the first, second and third plurality of layers have a tenacity of at least 10 grams per dtex. Further, the first, second and third plurality of layers combined have an areal density of no more than 6.9 kilograms per square meter.

U.S. Patent No. 5,037,690 is directed toward a shaped product comprising a sheet material of polyurethane resin material reinforced with binder-free natural-fibre material, such as jute, flax, hemp, coir, ampas, ramie or cotton, possibly combined with polypropylene, polyethylene and/or glass fibres. A preferred fibre material is jute, preferably in the form of jute needled felt. The invention also provides a process for making the product. In the process, a binder-free mat of natural-fibre material having a water content of at least 4% which is impregnated with a known per se mixture thermosettable to form a polyurethane material, comprising a polyether-polyol component and an isocyanate component, followed by maintaining the temperature of the mixture at 20°-50° C, and setting the impregnated fibrous mat in a closed mold at a pressure of 3.5-20 kg/cm<sup>2</sup> and a temperature of 20°-75° C.

U.S. Patent No. 5,190,802 is directed toward ballistic resistant laminates that have been developed by bonding alternating plies of fabric woven from glass or normally solid organic polymers and non-woven scrim prepreg impregnated with a heat curable resin. A preferred organic polymer is an aramid exemplified by Kevlar. A preferred heat curable resin is phenol-formaldehyde/polyvinyl butyral blend.

U.S. Patent No. 5,649,398 is directed toward a method for reinforcing the face or

faces of walls so as to prevent or reduce the likelihood of failure when such walls are subjected to atypical loadings such as are encountered during earthquakes. The method includes the step of applying a resin-impregnated fabric layer over a portion of an exposed face of a wall to be reinforced. The method includes the further step of anchoring the resin-impregnated fabric layer to a structural member of the wall using fabric fasteners, adhesives, or a combination thereof.

U.S. Patent No. 5,124,195 is directed toward a coated web or composite having improved flexibility. The coated web comprises at least one layer and preferably at least two layers. The layers comprise a fibrous web located or embedded with polymeric composition. The coated web is flexed sufficiently over at least a portion of the web surface to have improved flexibility properties. The web can be flexed in a single direction along the surface or randomly along the whole surface. Preferably, the web is flexed sufficiently to form a plurality of permanent creases or wrinkles. The coated web has improved flexibility, and at the same time, impact resistant properties, such as ballistic resistance, are substantially maintained compared to an unflexed web.

U.S. Patent No. 5,076,168 is directed toward a shielding sheet for blasting operations which comprises a fabric for shielding a site to be destructed by a blasting operation, said fabric composed of a yarn of polyethylene fiber having a tensile strength of not less than 15 g/d, a tensile modulus of not less than 400 g/d and a total denier of not less than 600, and a weight of said fabric being not less than 130 g/m<sup>2</sup>.

U.S. Patent No. 4,731,972 is directed toward a fabric wall panel consisting of a frame formed from linear frame members with a flat insert within the frame and fabric stretched over the frame and glued on the back. The linear frame members have an inside tongue for fastening the frame to a wall and an outside raised channel of three profiles, square, triangle, and quarter round.

U.S. Patent No. 4,822,657 is directed toward a bullet resistant panel defined by an assembly including plural layers of impact resistant fabric and a layer of insulating foam, the

assembly being secured within a peripheral frame and laminated between intermediate substrates of cellulosic material and exterior layers of metal. The panel may be used in constructing protective walls or barriers subjected to possible impact by bullets or other high impact force projectiles.

U.S. Patent Application Publication No. 2004/0123541 is directed toward a reinforced wall system for protecting underlying wall substrates against natural and unnatural blast effects. The reinforced wall system may be made by combining several layers of materials in various configurations. In a preferred embodiment, the reinforced wall system includes an underlying wall substrate, and a reinforcing wall covering. The reinforcing wall covering includes three layers of elastomeric material, one layer of a reinforcement grid, and a layer of a release agent. The first layer of elastomeric material is applied to the underlying wall substrate. A reinforcement grid of strands is then applied to the first elastomeric layer. Preferably, the grid includes horizontally and vertically extending strands having elastic cores wrapped by helically woven aramid fibers. A second elastomeric layer is applied to the reinforcement grid for additional blast protection. Preferably, the reinforcing wall covering includes a third elastomeric layer. However, the third elastomeric layer is separated from the second layer by a release agent. The release agent is applied between the second and third elastomeric layers to reduce the adherence between the two. If the reinforced wall system experiences an explosive blast, the third elastomeric layer shears at the release agent from the underlying second elastomeric layer providing independent deformation and protection from each layer. Textures may be incorporated into the elastomeric polymer to provide the appearance of a conventional wall and promote the adhesion of additional coatings. Alternatively, modified spackle incorporating polymer adhesives may be used to cover the most exterior polymer layer. Fungicides, bactericides, viruscides and fire retardants may be incorporated into the reinforcing wall system to provide protection against the spread of biological agents and fire.

U.S. Patent Application Publication No. 2003/0104738 is directed toward multi-layered composites, laminates and composite joints in which at least one resin-impregnated, fiber-containing layer is joined or laminated to a core layer having a lower flexural modulus

or higher elongation at break, higher toughness, or a combination of all or some of these properties. The multi-layer composite produced by laminating or joining these materials together has improved shearout, impact and cutting resistance, since stresses caused by outside forces can be more widely distributed throughout the composite.

U.S. Patent Application Publication No. 2003/0199215 is directed toward woven fabric laminates having superior resistance to penetration by ballistic projectiles, assemblies thereof, and the method by which they are made. In one embodiment, among others, a laminate of the invention is comprised of a fabric woven from a high strength, high modulus yarn, a surface coating of a low modulus elastomer and a plastic film bonded to its elastomer-coated surface.

U.S. Patent Application Publication No. 2003/0188498 is directed toward an impact resistant laminated glass and plastic pane is provided for a hurricane resistant door light or similar opening. A glass pane is attached to a flexible plastic sheet that protrudes beyond the peripheral edge of the glass, preferably as an extension of the plastic laminate between outer glass laminate sheets. The pane body is mounted in a building structural part such as a door or wall, at an opening or at a recess, whereby the surface of the structural part extends up to a point adjacent to the pane. According to an inventive aspect, the flexible sheet that is attached to the pane, e.g., laminated into the pane body or otherwise attached and protruding, laps over the surface adjacent to the edge of the structural part around the pane. An elongated molding element that preferably frames the opening, is attached to the structural part so as to capture the flexible sheet between the molding element and the surface.

Applicant respectfully submits that each of the claims of the present application are patentable over the cited references.

Regarding Claim 1:

All of the above cited references fail to teach or disclose spraying a layer of an elastomeric material to form a blast resistant panel of a predetermined thickness; and once cured, securing said blast resistant panel to a surface of said structure.

Regarding Claim 14:

All of the above cited references fail to teach or disclose a cured layer of a sprayed elastomeric material having a predetermined thickness, and fastener elements for securing said cured layer to a surface of a structure.

Regarding Claim 27:

All of the above cited references fail to teach or disclose one or more panels constructed of an elastomeric material sprayed onto a fabric reinforcing layer, said one or more panels having a steel channel fastened around a periphery thereof; and a plurality of fasteners adapted to fasten said steel channel and said one or more panels to a wall of said structure.

Regarding Claim 30:

All of the above cited references fail to teach or disclose a cured panel of a sprayed elastomeric material having a predetermined thickness; a channel attached around a periphery of the cured panel; and a plurality of fasteners to fasten said channel to a surface of a structure.

Regarding Claim 42:

All of the above cited references fail to teach or disclose positioning a reinforcing fabric material against a molding surface; spraying a first layer of an elastomeric material to a first thickness onto a first portion of the reinforcing fabric material; flipping the reinforcing fabric material with the first layer of the elastomeric material over to expose a second portion of the reinforcing fabric; and spraying a second layer of the elastomeric material to a second thickness onto the second portion of the reinforcing fabric material.

Regarding Claim 50:

All of the above cited references fail to teach or disclose a cured panel of a sprayed elastomeric material having a fabric reinforced layer embedded therein, the cured panel having a predetermined thickness between about 100 mil and 250 mil, a percent elongation at

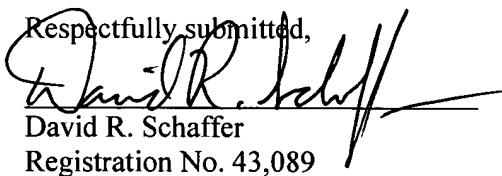
break in a range of about 400-800% and a tensile strength of about 2000 psi or greater, the fabric reinforcing layer being substantially planar and including warp and fill yarns defining an open grid pattern with openings of up to about 0.5 inches by 0.25 inches and a tensile strength of about 1200 psi by 1200 psi; and a steel channel subsystem configured to be attached around a periphery of the cured panel and the steel channel subsystem and the periphery of the cured panel fastenable to a surface.

5. Under MPEP § 708.02, Section XI, a petition to make special is proper if the application relates to an invention for countering terrorism. The above-identified application discloses and claims an invention of this type. More specifically, in the Background of the Invention section the application observes that in the aftermath of recent terrorist attacks, in which buildings have been targeted for destruction, increased attention has been paid to improving the safety of workers inside such buildings, should further attacks be forthcoming. It has been determined that a main source of damage to articles and injury to persons inside of a building under attack is not necessarily the initial blast of an impact or explosion against the building, but instead is the flying shrapnel (pieces of the building wall) generated by the blast.

It has been determined that improvements in containing this shrapnel can be accomplished by spraying a polymeric liner onto the interior surface of the structural wall of a building. A polymer proposed for this application is a polyurethane material that is sprayed directly onto an interior surface of the structural wall. However, the in situ spraying of such a liner is a relatively expensive process, and requires skilled equipment operators and careful containment of the area in which the spraying is being performed. In addition, the polyurethane material has a very rapid set or cure time, that is, on the order of only a few seconds. Thus, when the polyurethane is inadvertently sprayed onto surfaces, which are not intended to have a liner thereon, it can be very difficult to remove the material from such surfaces. In addition, retrofitting of existing buildings by in situ spraying methods is extremely disruptive and frequently requiring the displacement of personnel and equipment due to deterioration of air quality during the spraying process. Therefore, prefabricated/pre-formed panels minimize such problems.

The exemplary embodiments of the invention claimed and disclosed in the above-identified application solve at least this problem while providing at least as good, and possibly better, protection of the workers in a building in which the inventive panels are installed. In one exemplary embodiment of the invention, pre-formed panels may each be produced having a predetermined thickness and installed onto the interior surface of a structural wall of a building. The panels may be produced off-site by spraying a polyurea or other elastomeric material to the predetermined thickness to facilitate the production process and the performance of the finished panels. The periphery of the panels may be surrounded by a channel through which fasteners may be inserted to secure the panel to the wall. The present invention also involves an exemplary method for producing a penetration resistant panel, including positioning a reinforcing fabric material against a molding surface; spraying a first layer of an elastomeric material to a first thickness onto a first portion of the reinforcing fabric material; flipping the reinforcing fabric material with the first layer of the elastomeric material over to expose a second portion of the reinforcing fabric; and spraying a second layer of the elastomeric material to a second thickness onto the second portion of the reinforcing fabric material.

In view of the foregoing, Applicant respectfully requests that Special Status be granted to the above-identified application.

Respectfully submitted,  
  
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